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We trust that entomologists will aid in supporting this enterprise, and send the small pittance of 50 cents asked for a separate copy.

BIRDS OF KANSAS.\*—The first edition of Professor SNOW's "Catalogue of the Birds of Kansas" has already been noticed in these pages,† and some of its shortcomings briefly mentioned. We have now the second edition of this work, in which the deficiencies of the first are fully supplied. The number of species has been raised from 239 to 282, and many typographical and other errors amended. Few species probably now remain to be added except such as are accidental or casual visitors. We notice that *Centrocercus urophasianus* has been stricken out, and that among the many important additions are *Garzetta candidissima*, *Herodias egretta*, and *Graculus Mexicanus*, not previously reported from Kansas. The latter (*Graculus Mexicanus*) we are informed was identified by Professor Baird, and forms the first known instance of its occurrence north of the Rio Grande. The nomenclature is that of the ninth volume of the Pacific Railroad Reports, and hence a number of species are admitted that are not now usually regarded as valid. In addition to Prof. SNOW's own observations, he has availed himself of all the aid within his reach, and has thus given us a highly valuable and creditable list of the birds of Kansas. It forms a neatly printed pamphlet of 16 pages, and has a less number of typographical errors than similar brochures usually have, though we find "*Ereunetes*" printed for *Ereunetes*, "*Passarella*" for *Passerella*, etc.—J. A. A.

## BOTANY.

FERTILIZATION OF YUCCA BY A MOTH.—At the Dubuque meeting of the American Association for the Advancement of Science, Prof. RILEY gave an abstract of a paper which will appear in full in the Transactions of the St. Louis Academy of Science. He briefly described the generic and specific characters of a little moth which is one of the most anomalous known to entomologists. He first described how many of our flowers, such as the *Asclepias* and orchids, were curiously constructed so as to be incapable of

\* Catalogue of the Birds of Kansas, contributed to the Kansas Academy of Sciences. By Frank H. SNOW, Professor of Natural History and Meteorology in the University of Kansas, at Lawrence. Second edition, Oct., 1872. 8vo. 16 pp. 25 cents.

† Amer. Nat., vol. vi, pp. 359, 482, 483.

fertilizing themselves, and at the same time to attract insects to do it for them. Dr. Engelmann had this year discovered that *Yucca* was one of those plants which depended on insects for fructification, and Prof. Riley had discovered that the little moth in question, which he calls *Pronuba yuccasella*, is the only insect which can have anything to do with this fructification. But what is more interesting in this case is, that the plant not only depends on the assistance of the moth, but that the moth, in turn, is likewise dependent upon the plant, since its larvæ live on the seeds. We have, consequently, a mutual interdependence which is very striking, and in the structure of the female moth there is a curious adaptation of means to an end by a complete modification of parts, and especially of the maxillary palpi, which are formed into prehensile tentacles, by which she collects the pollen to insert it into the stigmatic tube.

**TREES AND RAIN.**—The influence of trees upon rains and the general moisture of the atmosphere, which has been so much discussed of late, receives a strong illustration from the island of Santa Cruz, W. I.

A friend who spent the months of February, March and April last upon the island informs me that when he was there twenty years ago, it was a garden of freshness, beauty and fertility. Woods covered the hills, trees were everywhere abundant and rains were profuse and frequent. The memory of its loveliness called him there at the beginning of the present year when, to his astonishment, he found about one-third of the island, which is about twenty-five miles long, an utter desert. The forests and trees generally had been cut away, rainfalls had ceased and a process of desiccation beginning at one end of the island had advanced gradually and irresistibly upon the island, until for seven miles it is dried and desolate as the sea-shore. Houses and beautiful plantations have been abandoned, and the people watch the advance of desolation, unable to arrest it, but knowing almost to a certainty, the time when their own habitations, their gardens and fresh fields will become a part of the waste; the whole island seems doomed to become a desert.

The inhabitants believe, and my friend confirms their opinion, that this sad result is due to the destruction of the trees upon the island some years ago.—J. S. M.

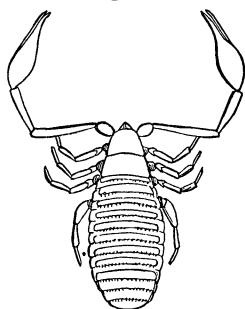
ACER NIGRUM WITH STIPULES.—Mr. J. F. Mills sends a branch of a black maple in which *well-formed foliaceous stipules* are developed, their bases adnate to the petiole. The peculiarity is confined to a single tree, and the like has not been seen before in maples, so far as we know. Mr. Mills should inform us if the peculiarity is reproduced next year.—A. G.

A SEAWEED NEW TO OUR COAST.—This alga (*Hildenbrandia rosea* Kunze) occurs at Mt. Desert, in rocks between low and high water, in similar situations in Massachusetts Bay (Weymouth, Fall River and at Nantucket), and probably all along the coast.—H. WILLEY, *New Bedford*.

## ZOOLOGY.

EMBRYOLOGY OF CHELIFER AND PHALANGIUM.—Prof. Metschnikoff, the Russian embryologist, has lately published in Siebold and Kölliker's Zeitschrift, an account of the embryology of Chelifer, of which our *C. cancrroides* (Fig. 151) is an example. He remarks in closing "that in view of the great morphological and anatomical similarity between Chelifer and the scorpions we might expect that these animals would be alike in their embryological development. But observation shows that the mode of development of Chelifer reminds us much more of that of the lower Arachnids, namely, the Pycnogonids.\* The first embryological occurrence, the segmentation of the yolk, is total in Chelifer, as in the Pycnogonids, Pentastoma and Tardigrades, while the eggs of the true scorpions undergo a kind of partial segmentation. The most peculiar phase in the development of Chelifer, namely, the formation of the larva and its metamorphosis, is at all events much more like the development of the Pycnogonids than the scorpions. I

Fig. 151.



*C. cancrroides*.

\* These creatures are considered as Crustacea by perhaps the majority of zoologists. Dr. Dohrn concludes from a study of their embryology that "The Pycnogonidæ are neither Arachnida nor Crustacea; with the former they really have no relationship, with the latter they have, as a common starting point, the nauplius form, but they depart at this point from the course of development of the Crustacea, which continues to go on to the zoëa form.